UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,197	01/14/2004	Jimmie Earl DeWitt JR.	AUS920030556US1	3551

			EXAMINER
35525	7590	09/13/2006	NEWAY, SAMUEL G

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ART UNIT	PAPER NUMBER
2194	

DATE MAILED: 09/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/757,197	DEWITT ET AL.
	Examiner	Art Unit
	Samuel G. Neway	2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>14 January 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 January 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date <u>8/21/06, 8/2/06.... 6-19-06, 5-30-06, 4-25-06</u>
    <u>3-24-06, 3-01-05, 1-14-04</u>

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1 – 20 are pending and are considered below.

Information Disclosure Statement

2.   The article "Parallelization Assist System" by Kikuchi in the information disclosure statement filed on 01/14/2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent, publication, or other information listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Specification

3.   The attempt to incorporate subject matter into this application by reference to the related applications listed under "Cross Reference To Related Applications" is ineffective because the serial numbers of said related applications are missing. The incorporation by reference will not be effective until correction is made to comply with 37 CFR 1.57(b), (c), or (d). If the incorporated material is relied upon to meet any outstanding objection, rejection, or other requirement imposed by the Office, the correction must be made within any time period set by the Office for responding to the objection, rejection, or other requirement for the incorporation to be effective. Compliance will not be held in abeyance with respect to responding to the objection, rejection, or other requirement for the incorporation to be effective. In no case may the correction be made later than the close of prosecution as defined in 37 CFR 1.114(b), or

abandonment of the application, whichever occurs earlier.

Any correction inserting material by amendment that was previously incorporated by

reference must be accompanied by a statement that the material being inserted is the

material incorporated by reference and the amendment contains no new matter. 37

CFR 1.57(f).

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Regarding claims 1, 11, and 20, the phrase "may be" renders the claim indefinite

because it is unclear whether the limitations following the phrase are part of the claimed

invention. See MPEP § 2173.05(d).

6.   As to claim 20:

The Applicant appears to be attempting to invoke 35 U.S.C. 112 6th paragraph in

Claim 20 by using "means plus function" language. However, the Examiner notes that

the only "means" for performing these cited functions in the specification appears to be

software. Since no other specific structural limitations are disclosed in the specification,

the claims have not invoked 35 U.S.C. 112 6th paragraph when considered below. The

body of the claim appears to reasonably cover software only "means" and does not

constitute an "apparatus" as recited in the preamble.

Claim Rejections - 35 USC § 101

7.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8.   Claims 11 – 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 11 – 19 are directed to a "computer program product in a computer readable medium." According to Applicant's specification the "computer readable medium" may include electromagnetic signals. A form of energy, as electromagnetic signals are, does not fall in a statutory category of invention since it is not limited to a process, machine, manufacture, or a composition of matter.

Claim 20 can be reasonably interpreted as being directed to software per se (see discussion above) which is a functional descriptive material and therefore non-statutory.

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 1 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Granston et al. (US Patent 5,966,538) in view of Gove (US PGPub 2002/0073406).

11.   Claims 1, 11, and 20:

Granston discloses a method, in a data processing system, for optimizing

runtime execution of a computer program (abstract), comprising:

modifying performance profile data accumulated during a trace of a computer

program execution to include annotations based on the occurrence of one or more

events (col. 4, lines 34-37, fig.. 2), wherein the one or more events occur based on

performance indicators ("profile information") associated with one or more portions of

the computer program.

However, Granston does not specifically disclose wherein the one or more

events occur based on hardware counter values.

Gove discloses a similar method using event counter information to improve the

runtime execution of a computer program wherein the one or more events occur based

on hardware counter values ("event counter") (abstract, paragraphs 8, 20, fig. 2).

It would have been obvious to one with ordinary skill in the art at the time the

invention was made to include Gove's hardware counter information to provide

hardware assistance to the optimization of the runtime execution in Granston's method

in order to minimize latency introduced by software profiling which usually work by

adding more code in the profiled program therefore potentially increasing latency.

Granston also discloses providing the annotated performance profile data to a

computer program compiler (fig. 2, item 14);

and identifying one or more optimizations to the runtime execution of the

computer program that may be performed based on the performance profile data and

the annotations ("determine which compiler options should be applied", col. 3, lines 44-47).

Claims 2 and 12:

Granston and Gove disclose the method of claims 1 and 11, Granston also discloses outputting an indication of the identified one or more optimizations to a user ("displays recommendations to the user", col. 4, lines 60-61).

Claims 3 and 13:

Granston and Gove disclose the method of claims 2 and 12, Granston also discloses receiving a user input selecting at least one of the one or more optimizations to be implemented; and implementing the selected at least one of the one or more optimizations to generate an optimized computer program (col. 4, lines 61-64, fig. 2).

Claims 4, 6, 7, 14, 16, and 17:

Granston and Gove disclose the method of claims 3 and 13, Granston also discloses optimizing execution of a program using user information, compile-time information and/or profile information (col. 2, lines 4-12, col. 4, lines 44-47). However, Granston does not specifically teach optimizing cashing. Gove discloses optimizing caching by enabling pre-fetching in order to reduce data cache misses (paragraph 25). It would have been obvious to one with ordinary skill in the art at the time the invention was made to include different types of cache optimization in Granston's method in order to minimize latency and improve runtime execution.

Claims 5 and 15:

Granston and Gove disclose the method of claims 1 and 11, Granston also

discloses automatically implementing at least one of the one or more optimizations to

the runtime execution of the computer program to generate an optimized computer

program (col. 2, lines 16-19).

Claims 8 and 18:

Granston and Gove disclose the method of claims 2 and 12, Granston also

discloses wherein the indication is a graphical user interface through which a user may

select respective ones of the one or more optimizations that are to be implemented with

code of the computer program during compilation of the computer program ("displays

recommendations to the user", col. 4, lines 60-65, fig. 1, item 8).

Claims 9 and 19:

Granston and Gove disclose the method of claims 3 and 13, Granston also

discloses wherein the selected at least one of the one or more optimizations is

implemented by a compiler during compilation of the computer program (col. 4, lines 65-

67, fig. 2).

Claim 10:

Granston and Gove disclose the method of claim 5, wherein the at least one of

the one or more optimizations is automatically implemented by a compiler during

compilation of the computer program (col. 2, lines 16-19, fig. 2).

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

   Blandy et al. (US Patent 5,940,618) discloses a non-intrusive performance

   monitoring system using cache memory optimization.

   Johnston et al. (US Patent 6,189,142) discloses a runtime performance analysis

   in a computing system, instrumenting programs and gathering execution

   information.

   Agrawal et al. (US Patent 5,768,500) discloses a profiler that samples system

   state using interrupts generated by a cache miss counter.

   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Samuel G. Neway whose telephone number is 571-270-

1058. The examiner can normally be reached on Mon - Thur 8:00AM - 5:00 PM EST.

   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, James Myhre can be reached on 571-270-1065. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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08/29/06

James W. Myhre
/Supervisory Patent Examiner